

## NOISE IMPACT STUDY – Project: 22482.00

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### 5 & 15 Tangreen Court

Toronto, ON

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Prepared for:

**CentreCourt**  
134 Peter St, Suite 200  
Toronto ON, M5V 2H2

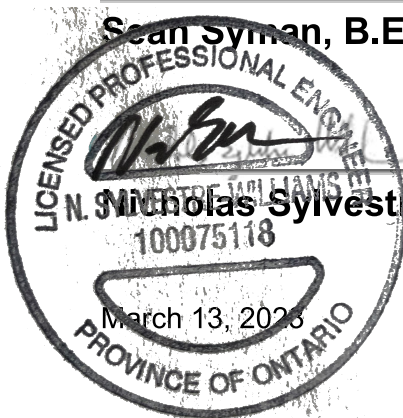
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## Revision History

Version	Description	Author	Reviewed	Date
- -	ZBA, SPA submission	HF	SLS,NSW	March 13, 2023

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## 1 Introduction

Aercoustics Engineering Limited (Aercoustics) was retained by CAPREIT 2 Limited Partnership to prepare a Noise Impact Study (NIS) to support the Zoning By-law Amendment (ZBA) and Site Plan Approval (SPA) application for the proposed mixed-use development at 5 Tangreen Court located in North York, Ontario.

The purpose of this study is to assess the noise impact of existing and proposed noise sources on the noise sensitive receptors in the area and to outline noise mitigation measures as required to satisfy the MECP sound level limits. These limits are described in the MECP publication entitled “Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning”, dated August 2013 (NPC-300).

The proposed development will consist of seven residential towers. Towers A, B, E, F and G each have an 8-storey podium, and Towers C and D each have a 6-storey podium. The podiums of Tower A and E will include commercial use spaces. Tower heights are as follows;

- Tower A: 55-storey
- Tower B: 40-storey
- Tower C: 25-storey
- Tower D: 25-storey
- Tower E: 55-storey
- Tower F: 45-storey
- Tower G: 35-storey

The surrounding area of the proposed development consists of commercial and residential buildings, of varying heights.

Figure 1 provides a key plan showing the development location. Figures 2 through 6 show the site plan of the proposed development, including critical sensitive receptors and noise impact calculation locations for both road noise and stationary sources.

This report is based on the following information:

- Architectural drawings prepared by IBI Group Architects, dated March 7, 2023; and
- Traffic data purchased from the City of Toronto on January 26, 2023.

The dominant sources of road traffic in the subject study area include Tangreen Court to the west, Steeles Avenue West to the north, Centrepont Mall to the east, and Yonge Street to the east. Note the site is well set back from Yonge Street.

The site is located approximately 700 m from the CN rail line to the north. It is also roughly 400 m west of the proposed Yonge North subway line and Steeles Ave station. As such, it is not expected to be significantly affected by rail traffic noise or vibration.

The site is not significantly affected by aircraft traffic.

## 2 Guidelines and Criteria

### 2.1 Transportation Noise – Outdoor Living Area (OLA)

MECP Guidelines recommend that equivalent noise levels ( $L_{eq} - 16\text{Hr}$ ) during daytime (07:00 – 23:00) in outdoor living areas (OLA) should not exceed 55 dBA due to combined noise impact from road and rail traffic sources. Predicted noise levels between 55 dBA and 60 dBA may be acceptable, provided that future occupants of the dwelling(s) are made aware of the potential noise problems which are to be addressed accordingly through the appropriate warning clauses. Noise levels above 60 dBA are generally not acceptable.

All unenclosed balconies that are less than 4 m in depth and outside the exterior of the building façade are exempt from meeting the MECP outdoor noise criteria with regards to transportation noise sources. Should the depth of future balconies and terraces greater than 4 m, they will be subject to the MECP noise level limit of 55 dBA.

### 2.2 Transportation Noise - Indoor Living Areas

Indoor noise level limits due to road traffic are also provided through MECP guidelines. Sleeping quarters are required to adhere to a nighttime indoor noise level ( $L_{eq-8\text{hr}}$ ) of 40 dBA and a daytime indoor noise level ( $L_{eq-16\text{hr}}$ ) of 45 dBA. Living rooms and dining rooms have noise level limits of 45 dBA for both nighttime ( $L_{eq-8\text{hr}}$ ) and daytime ( $L_{eq-16\text{hr}}$ ) hours. Lobbies, lounges, and general office spaces should meet an indoor noise level of 50 dBA from road traffic. To achieve these levels, the MECP guidelines provides a basis for which types of windows, exterior walls, and doors will be required based on outdoor noise level projections.

The MECP also requires that a central air conditioning unit be installed in dwellings which have daytime or nighttime outdoor transportation noise levels at the façade of the building above 65 dBA or 60 dBA, respectively. A Warning Clause would be required for these dwellings.

The provision for the future installation of central air conditioning must be made if:

- the nighttime sound level is greater than 50 dBA and less than or equal to 60 dBA on the outside face of a bedroom or living room/dining room window; or
- the daytime sound level is greater than 55 dBA and less than or equal to 65 dBA on the outside face of a bedroom or living room/dining room window.

This provision involves a ducted heating system sized to accommodate the addition of central air conditioning by the occupant and a Warning Clause would also be required.

The applicable limits as per NPC-300 are summarized in Table 1.

Table 1: Indoor Noise Limits due to Road Traffic

Type of Space	Time Period	Maximum $L_{eq}$ (dBA), Road Traffic
Living/dining, den areas of residences, hospitals, nursing homes, schools, day-care centres	07:00 – 23:00	45 dBA
	23:00 – 07:00	45 dBA
Sleeping quarters	07:00 – 23:00	45 dBA
	23:00 – 07:00	40 dBA

Note that the specified indoor sound level limits in Table 1 apply to the indicated indoor spaces with windows and doors closed.

### 2.3 Stationary Noise Sources

Guideline sound level limits pertaining to stationary noise sources per NPC-300 are summarized in Table 2. The sound level limit at a point of reception, expressed in terms of the one-hour equivalent sound level ( $L_{eq-1hr}$ ), is the higher of the applicable exclusion limit value, or the background sound level for that point of reception.

The subject site is classified as a Class 1 urban area in which background sound levels are dominated by the activities of people or road traffic.

Table 2: Noise Exclusion Limits – Stationary Noise Sources – Class 1

Time of Day	Sound Level Exclusion Limit, Plane of Window	Sound Level Exclusion Limit, Outdoor Point of Reception
Day (07:00 to 23:00)	50 dBA	50 dBA
Night (23:00 to 07:00)	45 dBA	-

The outdoor point of reception sound level limits for stationary sources apply only to daytime hours while sound level limits always apply for the plane of window of a noise sensitive space. In general, outdoor points of reception will be protected during the nighttime as a result of meeting the sound level limits at the adjacent plane of window of noise sensitive spaces.

The sound level limits listed in Table 2 for an outdoor point of reception define the point of reception as any area in the development that is amenable for use by residents. The sound level limit is also valid for a point of reception location at the centre of the plane of a residential window.

When evaluating emergency equipment, such as generators, operating in non-emergency situations, such as regular maintenance and testing, the stationary source exclusion limits are 5 dB higher than those listed in Table 2. The emergency equipment is evaluated independently from other stationary equipment. No exclusion limits apply to emergency equipment operating in emergency situations.

### 3 Noise Level Predictions – Procedure

#### 3.1 Road Traffic Noise Calculation Procedure

The dominant road traffic noise sources in the subject study area include Tangreen Court to the west, Steeles Avenue West to the north, Centrepont Mall to the east, and Yonge Street to the east. Road traffic noise level calculations were performed using the U.S. Department of Transportation's Traffic Noise Model Version (TNM) Version 2.5 within Datakustik's CadnaA Noise Prediction Software. The equivalent sound levels ( $L_{eq}$ ) due to road traffic were calculated for both daytime and nighttime. The representative worst-case noise sensitive residential receptors in the proposed development were then determined.

#### 3.2 Road Traffic Data

Road traffic noise predictions were based on the road traffic data outlined in Table 3. The AADT values were calculated from Turning Movement Count (TMC) data obtained from the City of Toronto. This data was used to calculate future projected volumes for Steeles Avenue West, Yonge Street, Centrepont Mall and Tangreen Court based on a growth rate of 2% per year. The number of years projected, shown in Table 3, was predicted to reflect a 10-year forecast as of the date of this study. Vehicle type was also determined from traffic turning data. Copies of the received data are included in Appendix B.

Table 3: Road Traffic Volumes

	Steeles Ave W	Yonge St	Centrepont Mall	Tangreen Ct
Data year	2014	2016	2019	2019
24-hour Volumes (AADT)	46,840	62,159	6,300	1,410
24-Hour Volumes (Projected AADT)	68,237	87,038	8,313	1,860
Yearly Growth Rate	2%	2%	2%	2%
Years Projected	19	17	14	14
No. of Lanes	3	3	1	1
Day/Night Split (%)	10/90	10/90	10/90	10/90
Percentage of Trucks Medium/Heavy (%)	3.8/1.6	4.1/1.5	1/1	0/0
Grade (%)	0	0	0	0
Posted Speed (km/h)	50	50	40	40

### 3.3 Stationary Noise Calculations Procedure

Each stationary noise prediction model was generated using Datakustik's CadnaA Noise Prediction Software. This model is based on established noise prediction methods outlined in the ISO 9613-2 standard "*Acoustic-Attenuation of sound during propagation outdoors – Part 2: General method and calculation*". Noise levels were predicted using conditions of downwind propagation, generally with hard ground modeled in applicable areas such as paved roads, parking lots, and open water and soft ground conditions elsewhere.

#### 3.3.1 Impact from Surrounding Land Use

Surrounding land uses include mixed-use commercial and residential developments as well as a school and public park. A detailed analysis was conducted to verify the degree of noise impact from nearby stationary sources of concern. Figure 3 shows the location of all the surrounding stationary noise sources considered for this assessment.

Stationary noise sources included rooftop equipment on surrounding buildings. The existing stationary noise sources of concern around the subject site were identified from recent aerials on Google Maps. The outline of stationary noise sources and typical capacities is as follows:

- One (1) RTU and one (1) cooling tower atop 10 Tangreen Ct;
- Three (3) RTUs atop 20 Tangreen Ct;
- One (1) cooling tower atop 205 Hilda Ave;
- One (1) RTU atop 175 Hilda Ave;
- One (1) RTU atop 15 Tangreen Ct;
- Thirty-eight (38) RTUs atop the closest west-most and north-most sections of Centrepont Mall;
- One (1) idle truck at the southwest loading bay of Centrepont Mall;
- Forty-one (41) RTUs atop 180 Steeles Ave W; and
- Twelve (12) RTUs atop the westmost units of 100 Steeles Ave W.

A 75% daytime and 50% nighttime duty cycle was assumed for the RTUs. A 100% daytime and 75% nighttime duty cycle was assumed for the cooling towers. The delivery trucks were estimated to idle for 10 minutes every hour on average during the daytime only.

#### 3.3.2 Impact from Proposed Development

The impact of the mechanical equipment on the surrounding noise environment and on the proposed site should be assessed once further detail is available.

## 4 Noise Level Predictions – Results

### 4.1 Transportation Noise

Table 4 lists the predicted 16-hour daytime and 8-hour nighttime  $L_{eq}$  levels on the proposed development receptors. The receptor locations and impact on development are shown in



Figure 2. These are representative of the worst-case noise sensitive receptors at each building façade.

Table 4: Predicted Noise Levels due to Road Traffic – Building Façade

Location (Figure 2)	Receptor Height (m)	Description	Leq	
			Day	Night
C01	11.5	Tower A - North Façade (Level 2)	68	62
C02	1.5	Tower A - East Façade (Level 1)	65	61
C03	48	Tower A - South Façade (Level 10)	57	55
C04	48	Tower A - West Façade (Level 10)	65	58
C05	48	Tower B - North Façade (Level 10)	61	57
C06	1.5	Tower B - East Façade (Level 1)	61	60
C07	1.5	Tower B - South Façade (Level 1)	54	54
C08	48	Tower B - West Façade (Level 10)	52	46
C09	1.5	Tower C - North Façade (Level 1)	56	54
C10	1.5	Tower C - East Façade (Level 1)	59	60
C11	34	Tower C - South Façade (Level 8)	58	56
C12	34	Tower C - West Façade (Level 8)	58	53
C13	34	Tower D - North Façade (Level 8)	61	58
C14	1.5	Tower D - East Façade (Level 1)	61	61
C15	1.5	Tower D - South Façade (Level 1)	51	52
C16	34	Tower D - West Façade (Level 8)	58	51
C17	11.5	Tower E - North Façade (Level 2)	69	63
C18	48	Tower E - East Façade (Level 10)	65	58
C19	48	Tower E - South Façade (Level 10)	46	40

Location (Figure 2)	Receptor Height (m)	Description	Leq	
			Day	Night
C20	11.5	Tower E - West Façade (Level 2)	64	57
C21	48	Tower F - North Façade (Level 10)	60	53
C22	27	Tower F - East Façade (Level 8)	56	50
C23	48	Tower F - South Façade (Level 10)	47	40
C24	11.5	Tower F - West Façade (Level 2)	60	54
C25	48	Tower G - North Façade (Level 10)	59	52
C26	27	Tower G - East Façade (Level 8)	54	48
C27	48	Tower G - South Façade (Level 10)	50	45
C28	11.5	Tower G - West Façade (Level 2)	58	51
OLA1	1.5	Tower A - Ground Level Outdoor Amenity	58	-
OLA2	1.5	Tower E - Ground Level Outdoor Amenity	44	-
OLA3	1.5	Tower F - Ground Level Outdoor Amenity	45	-
OLA4	40	Tower A - Level 9 Outdoor Amenity	56	-
OLA5	40	Tower B - Level 9 Outdoor Amenity	59	-
OLA6	28	Tower C - Level 7 Outdoor Amenity	59	-
OLA7	28	Tower D - Level 7 Outdoor Amenity	60	-
OLA8	40	Tower E - Level 9 Outdoor Amenity	56	-
OLA9	40	Tower F - Level 9 Outdoor Amenity	53	-
OLA10	40	Tower G - Level 9 Outdoor Amenity	56	-

#### 4.2 Stationary Noise – Impact from Surrounding Land Use

The lowest one-hour equivalent sound level ( $L_{eq}$ -1hr) noise impact exposure was predicted for each point of reception, locations shown in Figure 3, for the daytime and nighttime period.

Table 5 below shows the results of the maximum noise predictions on the proposed development receptors from off-site stationary noise sources. Figure 4 depicts the anticipated noise impact on the proposed development during daytime.

Table 5: Predicted sound levels at critical receptor locations from stationary noise sources – Phase 1

Receptor ID	Receptor Height (m)	Description	Time Period	Predicted $L_{eq}$ at POR (dBA)	Applicable Sound Level Limit (dBA)	Compliance with Limit?
R01	12	Tower G, Level 2 - West Façade	Daytime	44	50	Yes
			Nighttime	43	45	Yes
R02	128	Tower F, Level 36 - West Façade	Daytime	40	50	Yes
			Nighttime	39	45	Yes
R03	12	Tower E Podium, Level 2 - North Façade	Daytime	46	50	Yes
			Nighttime	44	45	Yes
R04	12	Tower B Podium, Level 2 - East Façade	Daytime	45	50	Yes
			Nighttime	43	45	Yes
R05	12	Tower D Podium, Level 2 - East Façade	Daytime	45	50	Yes
			Nighttime	43	45	Yes
R06	63	Tower D, Level 14 - West Façade	Daytime	42	50	Yes
			Nighttime	40	45	Yes
R07	63	Tower D, Level 14 - North Façade	Daytime	40	50	Yes
			Nighttime	39	45	Yes
R08	8	Tower D Podium, Level 1 Mezzanine - South Façade	Daytime	35	50	Yes
			Nighttime	21	45	Yes

Receptor ID	Receptor Height (m)	Description	Time Period	Predicted $L_{eq}$ at POR (dBA)	Applicable Sound Level Limit (dBA)	Compliance with Limit?
OLA1	1.5	Tower A, Ground Level Outdoor Amenity	Daytime	41	50	Yes
OLA2	1.5	Tower E, Ground Level Outdoor Amenity	Daytime	39	50	Yes
OLA3	1.5	Tower F, Ground Level Outdoor Amenity	Daytime	34	50	Yes
OLA4	30	Tower A, Level 9 Outdoor Amenity	Daytime	44	50	Yes
OLA5	23	Tower B, Level 9 Outdoor Amenity	Daytime	42	50	Yes
OLA6	23	Tower C, Level 7 Outdoor Amenity	Daytime	45	50	Yes
OLA7	23	Tower D, Level 7 Outdoor Amenity	Daytime	45	50	Yes
OLA8	30	Tower E, Level 9 Outdoor Amenity	Daytime	41	50	Yes
OLA9	30	Tower F, Level 9 Outdoor Amenity	Daytime	41	50	Yes
OLA10	30	Tower G, Level 9 Outdoor Amenity	Daytime	41	50	Yes

## 5 Noise Control Recommendations

### 5.1 Transportation Noise- Indoor Living Areas

The worst-case road traffic noise levels at the residential units of the development are not predicted to exceed the applicable limits. Windows, walls, and doors meeting the Ontario Building Code (OBC) requirements will suffice for noise control purposes. The indoor noise level has been calculated for a worst-case location with the maximum predicted outdoor noise level, provided in Appendix B. Standard OBC constructions have been assumed consisting of STC 27 windows and STC 47 walls. No additional mitigation is necessary.

Due to transportation noise levels at OLA's above 55 dB, warning clause type A should be provided for units in all the Towers. Sample wording is provided in Section 7.

Due to transportation noise levels at the façade above 65 dB and 60 dB at daytime and nighttime respectively, central air conditioning must be installed in units in the following locations:

- Tower A north and east façade;
- Tower D east façade; and
- Tower E north façade.

Warning clause type D should also be provided for these units. Sample warning clause wording is provided in Section 7.

Due to transportation noise levels at the façade above 55 dB and 50 dB at daytime and nighttime respectively, the provision for future installation of air conditioning must be made for units in the following locations:

- Tower A south and west façade;
- Tower B north, east and south façade;
- Tower C all façades;
- Tower D north, south and west façade;
- Tower E east and west façade;
- Tower F north, east and west façade; and
- Tower G north and west façade.

Warning clause type C should also be provided for these units. Sample warning clause wording is provided in Section 7. If the proposed development is to feature central air conditioning provided for all units falling under Warning clause Type C, this clause may be substituted with Warning Clause D.

## 5.2 Stationary Noise Sources

The predictions summarized in Table 5 show that the sound levels at the façade due to surrounding land use is not expected to exceed the limits provided by MECP guidelines. No mitigation is necessary.

## 6 Conclusions

Aeroustics Engineering Limited has been retained by CAPREIT 2 Limited Partnership to prepare Noise Impact Assessment, to support the Zoning By-law Amendment (ZBA) and Site Plan Approval (SPA) application for a residential development consisting of seven towers, in North York, Ontario.

The results of this study indicate that standard construction will be sufficient to meet the guideline sound levels for indoor areas. Due to traffic noise, the provision and future provision of central air conditioning must be made for the units at the specified façades. Mitigation for noise due to surrounding stationary sources is not required. The impact of

noise sources from the proposed development to itself and surrounding noise sensitive receptors should be assessed once details on mechanical equipment are available.

With the incorporation of the noise controls discussed in this report, the sound levels at the noise sensitive receptors of the proposed residential development will comply with MECP guidelines.

Should any of the plans or information used in the completion of this report change, a detailed review should be completed by an acoustical consultant to ensure the sound level limits are met.

## 7 Warning Clauses

Purchase, rental, and lease agreements for all units in the proposed residential building are recommended to include the following warning clause:

### Warning Clause Type A:

*"Purchasers/tenants are advised that sound levels due to increasing road may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City of Toronto and the Ministry of the Environment."*

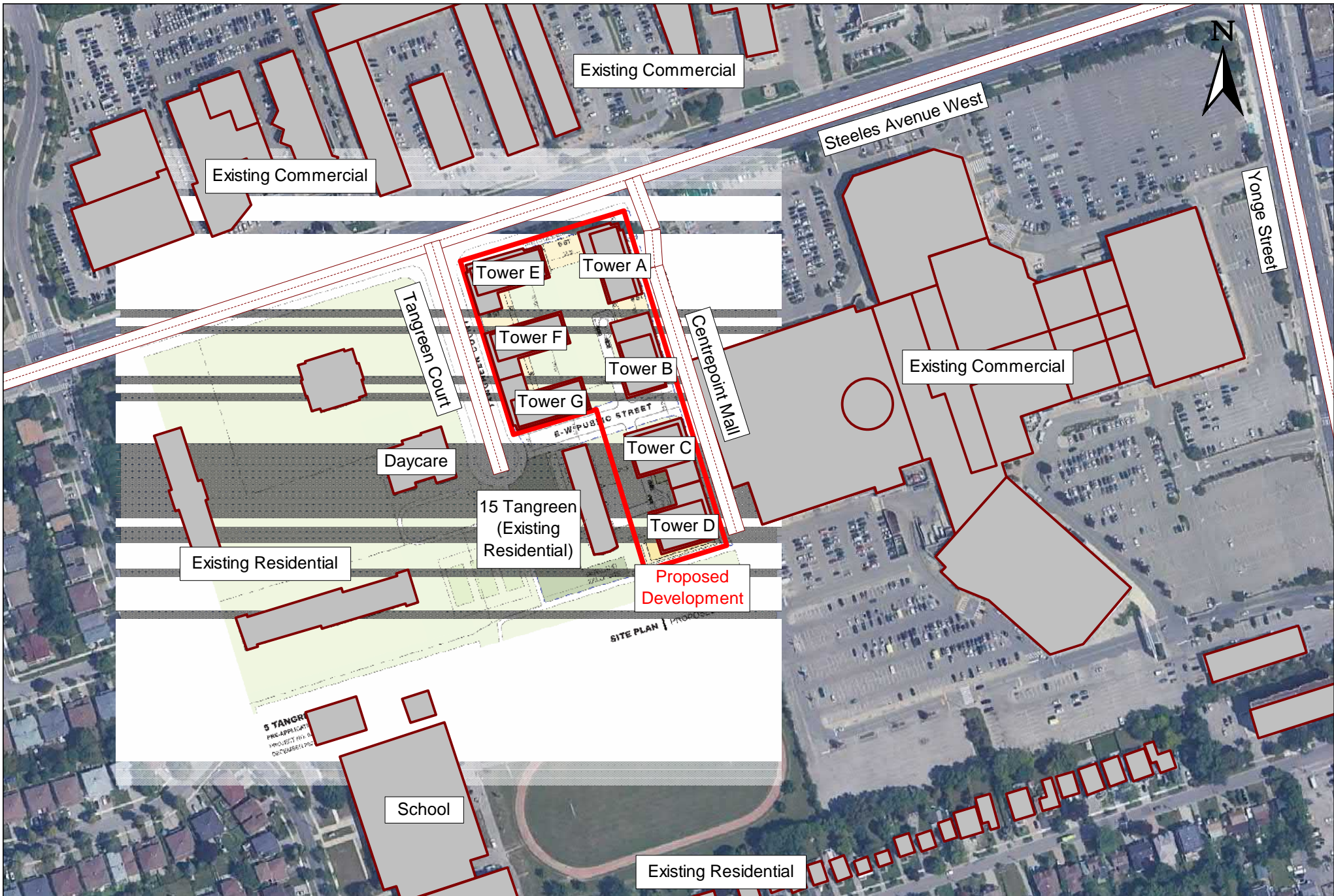
### Warning Clause Type C:

*"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City of Toronto and the Ministry of the Environment."*

### Warning Clause Type D:

*"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City of Toronto and the Ministry of the Environment."*





Project ID: 22482.00

Project Name

5 Tangreen Court

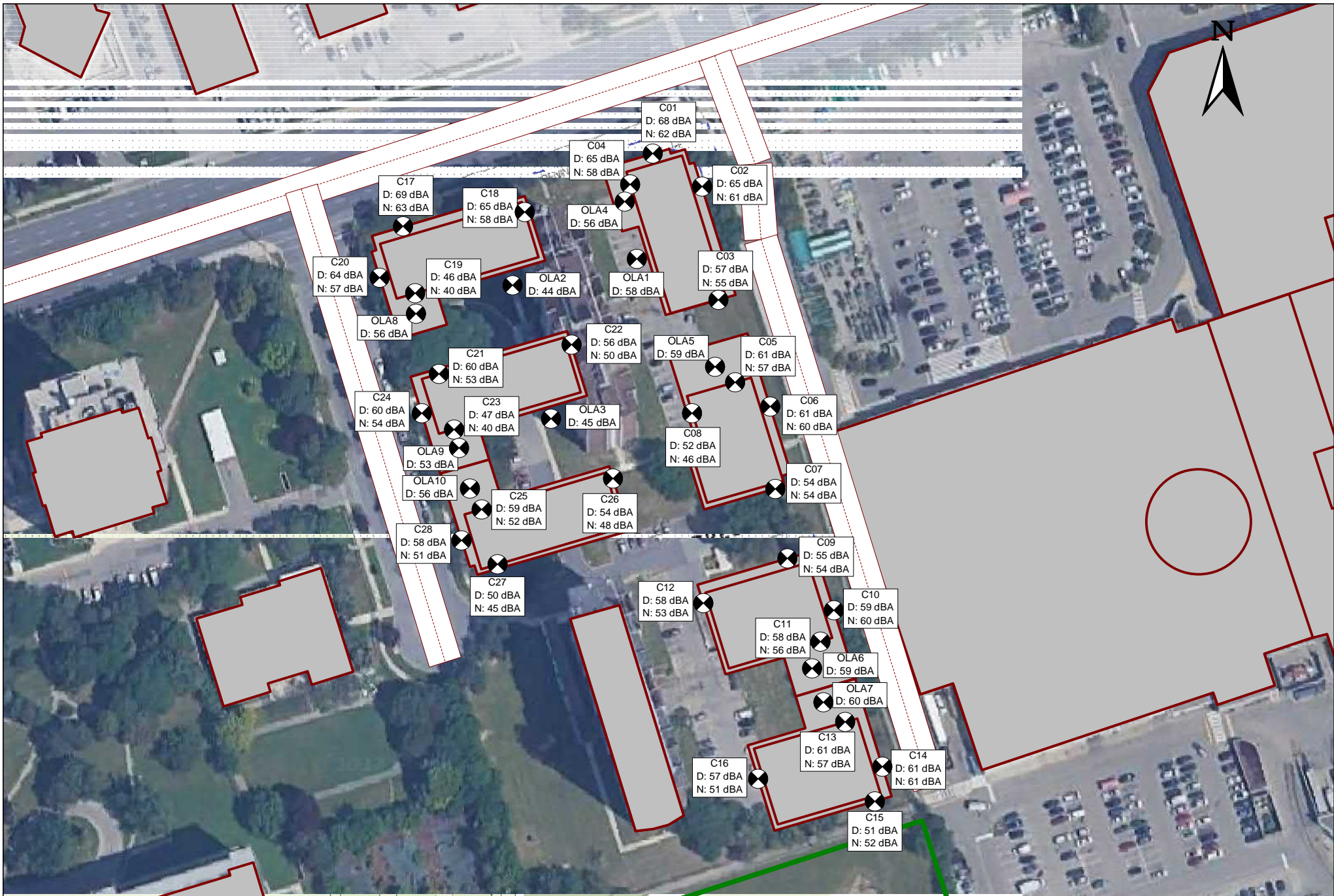
Scale: NTS  
 Drawn by: HF  
 Reviewed by: NSW  
 Date: March 06 2023  
 Revision: 1

Figure Title

Key Site Plan

**Figure 1**





Project ID: 22482.00

Project Name

5 Tangreen Court

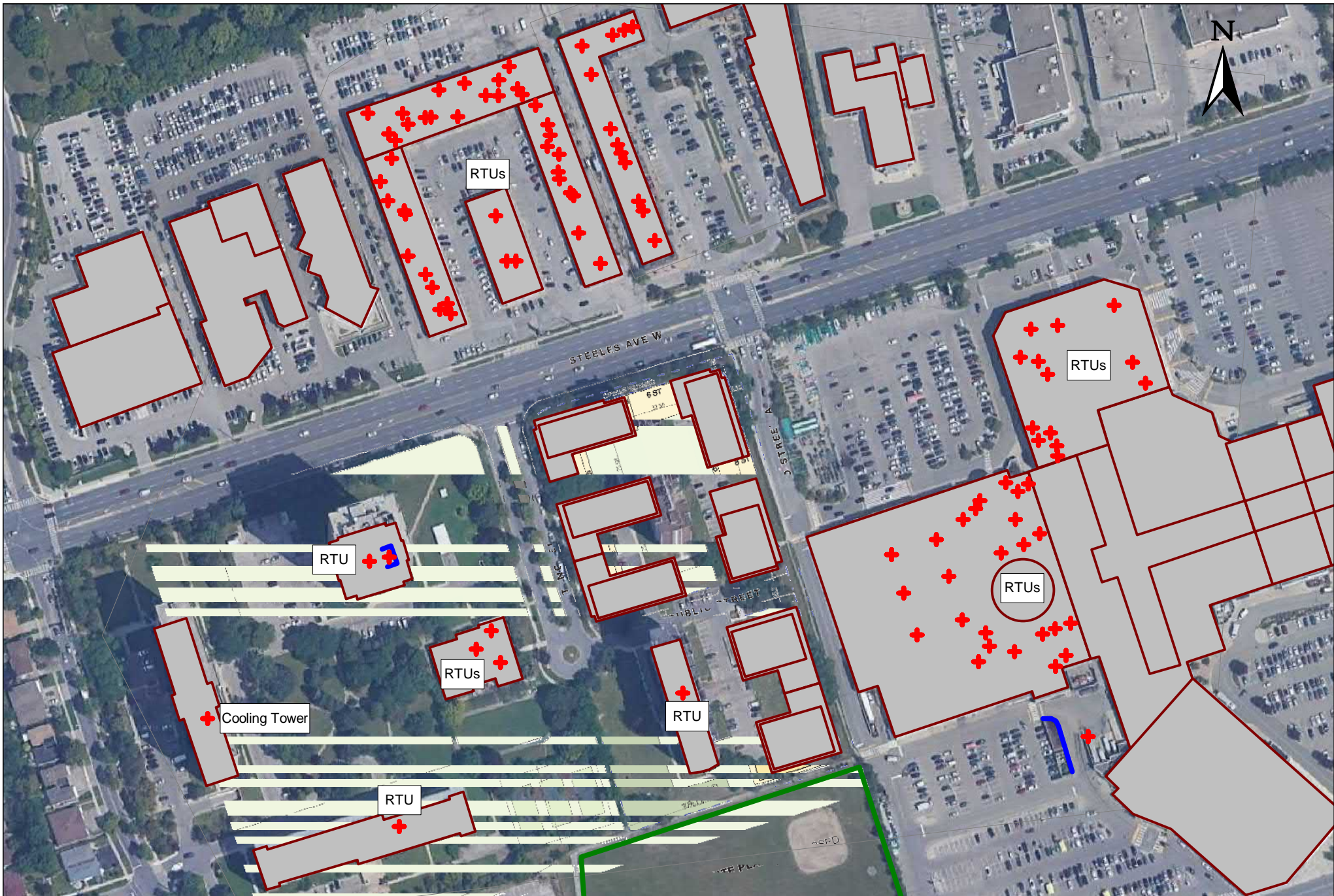
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 Drawn by: HF  
 Reviewed by: NSW  
 Date: March 06 2023  
 Revision: 1

Figure Title

Impact of Transportation Noise on Site

**Figure 2**

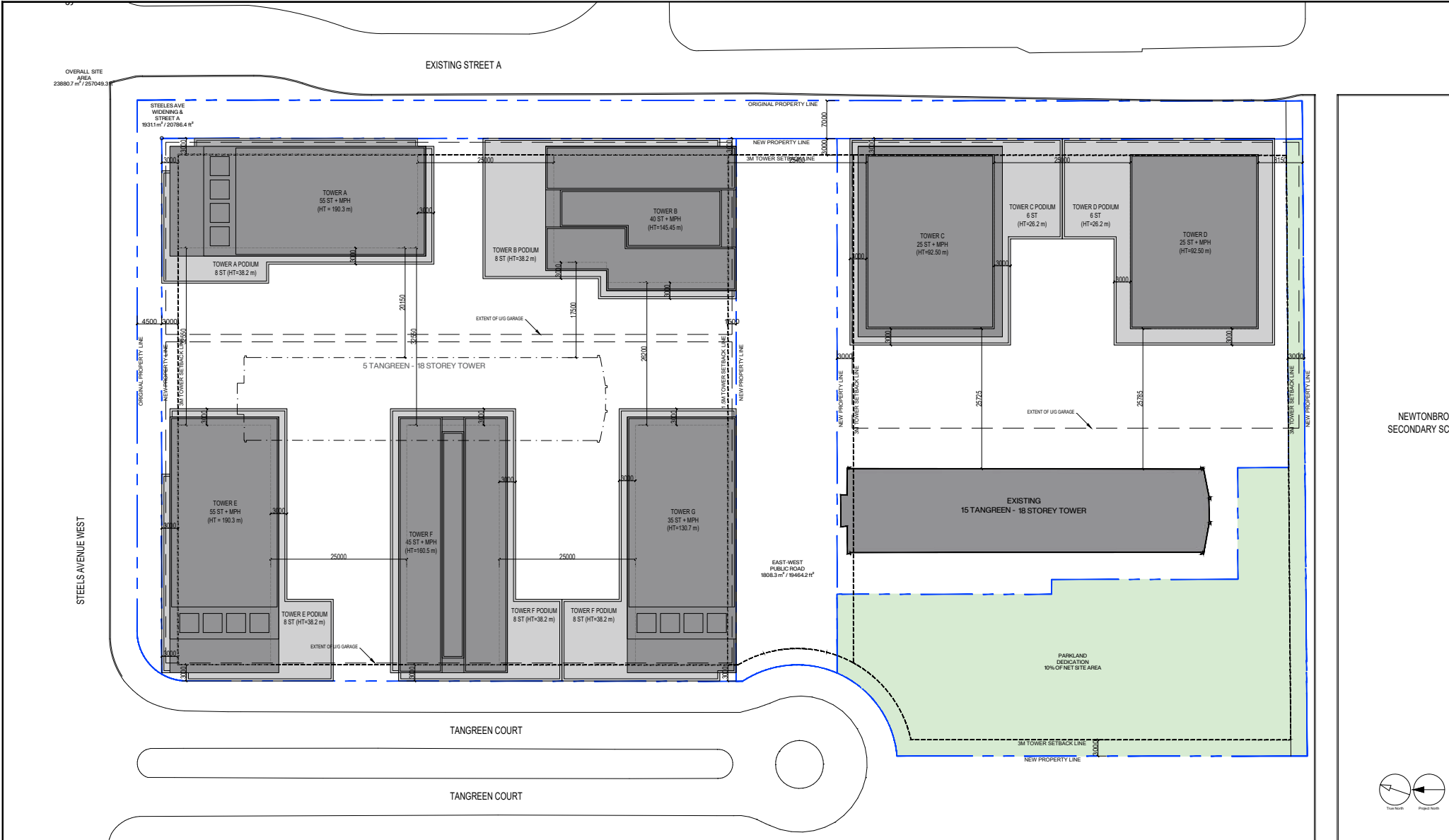






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**Appendix A**  
Site Plan & Drawings

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**KEY PLAN**

ISSUES	DESCRIPTION	DATE
01	252 SUBMISSION	2023/03/07

**SEAL**

<b>PROJECT</b>	
5 & 15 TANGREEN COURT, NORTH YORK	
PROJECT NO:	141719
DATE:	2023-01-25
SCALE:	1:150
CHECKED BY:	
APPROVED BY:	

<b>SHEET TITLE</b>	
SITE PLAN	
SHEET NUMBER	ISSUE
A.101	

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## **Appendix B**

### Road Traffic Data and Calculations

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Date  
2019-03-21 (Thu)

Study Hours  
School

Traffic Signal Number  
131

Total Volume  
47,304

Total Vehicles  
40,984

Total Cyclists  
12

Total Pedestrians  
6,308

Time Period	Vehicle Type	NORTHBOUND					EASTBOUND					SOUTHBOUND					WESTBOUND						N	E	S	W	Total
		Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total						
07:30–18:00	CAR	9,880	1,034	6,886	599	8,519	8,280	1,669	6,427	1,913	10,009	10,730	1,254	7,731	1,372	10,357	9,030	1,086	6,624	1,325	9,035	PED	1,297	1,275	1,608	2,128	6,308
TOTAL SUM	TRUCK	531	41	348	35	424	388	103	289	68	460	433	64	310	102	476	459	55	316	80	451	BIKE	3	1	7	1	12
	BUS	265	178	263	165	606	181	0	15	201	216	611	1	262	5	268	196	148	13	2	163	OTHER	0	0	0	0	0
47,304	TOTAL	10,676	1,253	7,497	799	9,549	8,849	1,772	6,731	2,182	10,685	11,774	1,319	8,303	1,479	11,101	9,685	1,289	6,953	1,407	9,649	40,984					
08:15–09:15 AM PEAK	CAR	940	110	734	107	951	1,093	151	806	257	1,214	1,637	180	1,276	140	1,596	1,175	104	925	55	1,084	PED	164	166	256	269	855
	TRUCK	67	5	41	3	49	51	18	41	7	66	69	7	48	11	66	69	14	53	8	75	BIKE	0	0	1	0	1
	BUS	46	27	45	26	98	29	0	3	30	33	98	0	43	0	43	30	25	3	1	29	OTHER	0	0	0	0	0
	TOTAL	1,053	142	820	136	1,098	1,173	169	850	294	1,313	1,804	187	1,367	151	1,705	1,274	143	981	64	1,188	5,304					
17:00–18:00 PM PEAK	CAR	1,598	107	1,133	40	1,280	1,178	203	968	212	1,383	1,373	170	1,004	168	1,342	1,190	157	915	262	1,334	PED	185	244	286	297	1,012
	TRUCK	53	1	37	2	40	37	6	28	11	45	40	7	25	11	43	41	4	29	10	43	BIKE	1	1	1	0	3
	BUS	45	26	45	24	95	24	0	0	34	34	88	0	36	0	36	26	18	0	0	18	OTHER	0	0	0	0	0
	TOTAL	1,696	134	1,215	66	1,415	1,239	209	996	257	1,462	1,501	177	1,065	179	1,421	1,257	179	944	272	1,395	5,693					
10:00–15:00 OFF PEAK	CAR	1,235	155	830	88	1,074	881	241	648	247	1,136	1,213	145	822	209	1,175	1,072	145	708	165	1,017	PED	134	116	128	210	589
	TRUCK	73	8	45	6	58	57	16	43	9	67	55	9	40	15	64	65	6	42	13	61	BIKE	1	0	1	0	2
	BUS	19	17	19	16	51	18	0	2	19	21	55	0	20	1	21	19	16	2	0	17	OTHER	0	0	0	0	0
	TOTAL	1,327	180	894	109	1,183	956	256	694	274	1,224	1,323	153	882	225	1,259	1,156	167	751	177	1,095	4,762					
07:30–09:30 2 HOUR AM	CAR	1,732	219	1,336	180	1,735	2,134	280	1,609	510	2,399	3,259	345	2,551	245	3,141	2,341	198	1,877	116	2,191	PED	326	301	480	505	1,612
	TRUCK	127	11	80	11	102	93	33	69	18	120	124	13	85	24	122	122	21	87	14	122	BIKE	0	0	2	0	2
	BUS	92	54	91	48	193	55	0	7	59	66	204	0	94	2	96	61	51	5	1	57	OTHER	0	0	0	0	0
	TOTAL	1,951	284	1,507	239	2,030	2,282	313	1,685	587	2,585	3,587	358	2,730	271	3,359	2,524	270	1,969	131	2,370	10,344					
16:00–18:00 2 HOUR PM	CAR	3,109	228	2,147	78	2,453	2,438	447	2,038	399	2,884	2,578	322	1,875	311	2,508	2,354	304	1,815	515	2,634	PED	392	441	545	641	2,019
	TRUCK	113	5	82	5	92	83	10	59	17	86	95	19	71	18	108	81	7	58	21	86	BIKE	1	1	2	0	4



Time Period	Vehicle Type	NORTHBOUND					EASTBOUND					SOUTHBOUND					WESTBOUND										
		Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	OTHER	N	E	S	W	Total
	BUS	92	52	92	50	194	51	0	0	60	60	172	1	80	0	81	53	32	1	0	33		0	0	0	0	0
13,242	TOTAL	3,314	285	2,321	133	2,739	2,572	457	2,097	476	3,030	2,845	342	2,026	329	2,697	2,488	343	1,874	536	2,753	11,219					

Date  
2019-03-21 (Thu)

Study Hours  
School

Traffic Signal Number  
1400

Total Volume  
26,902

Total Vehicles  
25,213

Total Cyclists  
9

Total Pedestrians  
1,680

Time Period	Vehicle Type	NORTHBOUND					EASTBOUND					SOUTHBOUND					WESTBOUND					PED	N	E	S	W	Total
		Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total						
07:30–18:00	CAR	1,097	1,301	119	418	1,838	10,331	323	9,280	1,493	11,096	2,058	633	156	253	1,042	10,195	409	8,641	655	9,705	PED	427	578	309	366	1,680
TOTAL SUM	TRUCK	46	43	4	20	67	520	16	474	46	536	62	26	0	15	41	507	16	449	26	491	BIKE	1	1	0	7	9
	BUS	1	0	0	0	0	212	1	212	0	213	0	0	0	0	0	184	0	184	0	184	OTHER	0	0	0	0	0
26,902	TOTAL	1,144	1,344	123	438	1,905	11,063	340	9,966	1,539	11,845	2,120	659	156	268	1,083	10,886	425	9,274	681	10,380	25,213					
08:15–09:15	CAR	100	78	7	26	111	1,267	36	1,227	158	1,421	217	14	5	17	36	1,251	54	1,156	57	1,267	PED	43	41	28	33	145
AM PEAK	TRUCK	2	6	1	5	12	69	1	63	4	68	7	1	0	0	1	73	3	67	0	70	BIKE	0	1	0	1	2
	BUS	1	0	0	0	0	34	1	34	0	35	0	0	0	0	0	30	0	30	0	30	OTHER	0	0	0	0	0
3,198	TOTAL	103	84	8	31	123	1,370	38	1,324	162	1,524	224	15	5	17	37	1,354	57	1,253	57	1,367	3,051					
16:15–17:15	CAR	159	223	26	76	325	1,571	47	1,383	235	1,665	305	112	23	39	174	1,437	47	1,175	86	1,308	PED	69	105	51	66	291
PM PEAK	TRUCK	3	5	0	3	8	43	1	39	2	42	5	1	0	3	4	51	3	43	2	48	BIKE	0	0	0	0	0
	BUS	0	0	0	0	0	25	0	25	0	25	0	0	0	0	0	26	0	26	0	26	OTHER	0	0	0	0	0
3,916	TOTAL	162	228	26	79	333	1,639	48	1,447	237	1,732	310	113	23	42	178	1,514	50	1,244	88	1,382	3,625					
10:00–15:00	CAR	160	184	16	59	259	1,142	48	993	192	1,233	275	91	24	39	154	1,209	59	986	96	1,141	PED	42	62	33	40	178
OFF HOUR	TRUCK	10	6	1	3	10	74	4	66	7	76	8	5	0	2	7	67	1	59	5	66	BIKE	0	0	0	2	2
	BUS	0	0	0	0	0	22	0	22	0	22	0	0	0	0	0	18	0	18	0	18	OTHER	0	0	0	0	0
3,164	TOTAL	170	190	17	62	269	1,238	52	1,080	199	1,330	283	96	24	41	161	1,294	60	1,062	102	1,224	2,984					
07:30–09:30	CAR	145	116	10	38	164	2,502	43	2,431	264	2,738	346	33	13	25	71	2,431	69	2,290	92	2,451	PED	78	92	61	61	292
2 HOUR AM	TRUCK	3	7	1	6	14	134	1	126	9	136	14	2	0	0	2	132	5	125	1	131	BIKE	0	1	0	1	2
	BUS	1	0	0	0	0	67	1	67	0	68	0	0	0	0	0	57	0	57	0	57	OTHER	0	0	0	0	0
6,126	TOTAL	149	123	11	44	178	2,703	45	2,624	273	2,942	360	35	13	25	73	2,620	74	2,472	93	2,639	5,832					
16:00–18:00	CAR	305	447	49	137	633	3,053	83	2,693	451	3,227	606	223	49	83	355	2,904	106	2,374	173	2,653	PED	150	227	101	122	600
2 HOUR PM	TRUCK	7	13	0	4	17	99	2	89	13	104	17	6	0	5	11	106	4	88	5	97	BIKE	0	0	0	0	0
	BUS	0	0	0	0	0	54	0	54	0	54	0	0	0	0	0	50	0	50	0	50	OTHER	0	0	0	0	0
7,801	TOTAL	312	460	49	141	650	3,206	85	2,836	464	3,385	623	229	49	88	366	3,060	110	2,512	178	2,800	7,201					

Date  
2000-05-04 (Thu)

Study Hours  
Routine

Traffic Signal Number  
None

Total Volume  
23,476

Total Vehicles  
23,256

Total Cyclists  
1

Total Pedestrians  
219

Time Period	Vehicle Type	NORTHBOUND					EASTBOUND					SOUTHBOUND					WESTBOUND						N	E	S	W	Total
		Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total	Exits	Left	Thru	Right	Total						
07:30–18:00	CAR	0	97	0	344	441	12,073	0	11,729	195	11,924	530	0	0	0	0	9,915	335	9,818	0	10,153	PED	0	4	201	14	219
TOTAL SUM	TRUCK	0	0	0	0	0	166	0	166	0	166	3	0	0	0	0	221	3	221	0	224	BIKE	0	0	0	1	1
	BUS	0	1	0	1	2	143	0	142	2	144	2	0	0	0	0	203	0	202	0	202	OTHER	0	0	0	0	0
23,476	TOTAL	0	98	0	345	443	12,382	0	12,037	197	12,234	535	0	0	0	0	10,339	338	10,241	0	10,579	23,256					
08:00–09:00	CAR	0	25	0	62	87	1,621	0	1,559	24	1,583	44	0	0	0	0	1,225	20	1,200	0	1,220	PED	0	2	25	2	29
AM PEAK	TRUCK	0	0	0	0	0	21	0	21	0	21	0	0	0	0	0	33	0	33	0	33	BIKE	0	0	0	0	0
	BUS	0	1	0	1	2	22	0	21	2	23	2	0	0	0	0	23	0	22	0	22	OTHER	0	0	0	0	0
3,020	TOTAL	0	26	0	63	89	1,664	0	1,601	26	1,627	46	0	0	0	0	1,281	20	1,255	0	1,275	2,991					
16:45–17:45	CAR	0	2	0	33	35	1,710	0	1,677	28	1,705	106	0	0	0	0	1,574	78	1,572	0	1,650	PED	0	0	26	1	27
PM PEAK	TRUCK	0	0	0	0	0	15	0	15	0	15	0	0	0	0	0	19	0	19	0	19	BIKE	0	0	0	0	0
	BUS	0	0	0	0	0	24	0	24	0	24	0	0	0	0	0	32	0	32	0	32	OTHER	0	0	0	0	0
3,507	TOTAL	0	2	0	33	35	1,749	0	1,716	28	1,744	106	0	0	0	0	1,625	78	1,623	0	1,701	3,480					
10:00–15:00	CAR	0	9	0	41	50	1,418	0	1,376	25	1,402	65	0	0	0	0	1,184	40	1,175	0	1,215	PED	0	0	26	2	28
OFF HOUR	TRUCK	0	0	0	0	0	25	0	25	0	25	0	0	0	0	0	31	0	31	0	31	BIKE	0	0	0	0	0
	BUS	0	0	0	0	0	12	0	12	0	12	0	0	0	0	0	23	0	23	0	23	OTHER	0	0	0	0	0
2,786	TOTAL	0	9	0	41	50	1,454	0	1,413	25	1,438	66	0	0	0	0	1,238	40	1,229	0	1,269	2,757					
07:30–09:30	CAR	0	56	0	112	168	3,022	0	2,910	42	2,952	88	0	0	0	0	2,259	46	2,203	0	2,249	PED	0	3	55	4	62
2 HOUR AM	TRUCK	0	0	0	0	0	34	0	34	0	34	1	0	0	0	0	54	1	54	0	55	BIKE	0	0	0	0	0
	BUS	0	1	0	1	2	52	0	51	2	53	2	0	0	0	0	46	0	45	0	45	OTHER	0	0	0	0	0
5,620	TOTAL	0	57	0	113	170	3,108	0	2,995	44	3,039	91	0	0	0	0	2,359	47	2,302	0	2,349	5,558					
16:00–18:00	CAR	0	6	0	67	73	3,381	0	3,314	52	3,366	181	0	0	0	0	2,921	129	2,915	0	3,044	PED	0	0	44	1	45
2 HOUR PM	TRUCK	0	0	0	0	0	33	0	33	0	33	1	0	0	0	0	43	1	43	0	44	BIKE	0	0	0	0	0
	BUS	0	0	0	0	0	43	0	43	0	43	0	0	0	0	0	66	0	66	0	66	OTHER	0	0	0	0	0
6,714	TOTAL	0	6	0	67	73	3,457	0	3,390	52	3,442	182	0	0	0	0	3,030	130	3,024	0	3,154	6,669					



STEELES AVE E OF HILDA AVE	Station Code	Artery Code	Study Type	Count Date	AM Peak	AM Peak Hour	PM Peak	PM Peak Hour	Off Peak	Off Peak Hour	24 Hour Total
<b>Westbound</b>											
STEELES AVE E OF HILDA AVE	1586	1586	Volume ATR	2014-04-29 (Tue)	1,325	11:00– 12:00	1,749	16:45– 17:45	1,610	15:45– 16:45	22,514
STEELES AVE E OF HILDA AVE	1586	1586	Volume ATR	2014-04-30 (Wed)	1,352	11:00– 12:00	1,786	17:00– 18:00	1,685	16:00– 17:00	23,169
STEELES AVE E OF HILDA AVE	1586	1586	Volume ATR	2014-05-01 (Thu)	1,445	11:00– 12:00	1,831	16:30– 17:30	1,709	15:15– 16:15	24,576
<b>Westbound Total:</b>					4,122		5,366		5,004		70,259
<b>Westbound Average:</b>					1,374		1,789		1,668		23,420
<b>STEELES AVE E OF HILDA AVE Total:</b>					4,122		5,366		5,004		70,259

YONGE ST S OF STEELES AVE	Station Code	Artery Code	Study Type	Count Date	AM Peak	AM Peak Hour	PM Peak	PM Peak Hour	Off Peak	Off Peak Hour	24 Hour Total
<b>Northbound</b>											
YONGE ST S OF STEELES AVE	1930	1930	Volume ATR	2016-06-14 (Tue)	1,784	08:30–09:30	2,355	17:00–18:00	2,220	16:00–17:00	30,587
YONGE ST S OF STEELES AVE	1930	1930	Volume ATR	2016-06-15 (Wed)	1,685	08:45–09:45	2,418	16:45–17:45	2,289	15:45–16:45	30,839
YONGE ST S OF STEELES AVE	1930	1930	Volume ATR	2016-06-16 (Thu)	1,692	08:30–09:30	2,388	17:00–18:00	2,308	16:00–17:00	30,837
<b>Northbound Total:</b>					5,161		7,161		6,817		92,263
<b>Northbound Average:</b>					1,720		2,387		2,272		30,754
<b>Southbound</b>											
YONGE ST S OF STEELES AVE	1932	1932	Volume ATR	2016-06-14 (Tue)	2,414	08:00–09:00	2,143	17:30–18:30	2,226	09:00–10:00	31,065
YONGE ST S OF STEELES AVE	1932	1932	Volume ATR	2016-06-15 (Wed)	2,392	08:30–09:30	2,184	17:45–18:45	2,019	09:30–10:30	31,718
YONGE ST S OF STEELES AVE	1932	1932	Volume ATR	2016-06-16 (Thu)	2,407	08:00–09:00	2,176	17:15–18:15	2,212	09:00–10:00	31,433
<b>Southbound Total:</b>					7,213		6,503		6,457		94,216
<b>Southbound Average:</b>					2,404		2,168		2,152		31,405
<b>YONGE ST S OF STEELES AVE Total:</b>					12,374		13,664		13,274		186,479

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## **Appendix C**

### Sound Power Levels for Stationary Sources

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Name	Octave Spectrum (dB)								
	31.5	63	125	250	500	1000	2000	4000	8000
5-ton RTU	-	57	76	72	73	75	75	71	69
10-ton RTU	-	98	90	86	85	84	78	71	66
Cooling Tower	-	95	94	94	90	86	79	74	71

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**End of Report**

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